3. Existing Industrial Wastewater Treatment Plant

This Section provides a background review of the IWTP's existing facilities, current process train, method of operation, discharge practices, and potential deficiencies in treatment and discharge capacity.

3.1. Existing Treatment Plant History

The IWTP was originally built in 1971 and is located approximately three-quarters of a mile to the east of the DWTP (**Figure 1-1** and **Figure 1-2**). Originally, the IWTP consisted of influent screening, two sedimentation ponds, aeration ponds (Ponds 1 and 2), and approximately 36.1 acres of percolation beds located to the east of the treatment ponds.

The IWTP was originally designed to treat high-strength industrial wastewater from two industrial dischargers. As of 1992, there was only one seasonal industrial discharger, San Benito Foods, discharging to the IWTP. San Benito Foods is a tomato processing facility operating during the summer and early fall months, typically from July to October.

As originally designed, wastewater first flowed through two settling basins for removal of large settleable solids. From the settling basins, wastewater flowed through two aeration ponds for the biological conversion of organic matter in the wastewater. For this biological conversion, there must be a readily-available supply of oxygen to sustain and promote biomass respiration. Approximately 25 floating surface aerators are located in Ponds 1 and 2 to supply oxygen. From the aeration ponds, the treated effluent was sent to the percolation beds for discharge.

Following the initial design, the IWTP underwent a series of improvements that addressed various treatment and discharge deficiencies. In 1973, a sludge storage lagoon, Pond 5A, was created by constructed a berm within a portion of the original Pond 5 to store the sludge collected in the settling basins. Approximately eight years later, an additional percolation bed, Pond 7, was constructed along the San Benito River for increased discharge capacity at the IWTP. However during the winter of 1997-1998, Pond 7 was destroyed by river erosion and has not been rebuilt.

In 1988, the operational strategy of the IWTP was modified in response to the improved pretreatment of industrial wastewater. Specifically, the canneries improved screening of their wastewater streams prior to discharge into the industrial sewer-storm drain system. The volume of large solids in the influent wastewater that had to be removed was reduced. As a result, the two sedimentation ponds were bypassed and the influent flow was diverted directly to the treatment ponds, Ponds 1 and 2. With the sedimentation ponds bypassed, the sludge storage lagoon, Pond 5A, was also taken out of service.

The IWTP operated in this mode up until 2001 when the City requested and received permission from the RWQCB to divert peak domestic wastewater for treatment and discharge at the IWTP on a temporary basis. In preparation for this modification, the City upgraded the influent headworks to the IWTP with a new mechanical screen to remove floatables from the influent domestic wastewater stream. Modifications to the secondary pond lift station were also made to allow effluent from Pond 2 to be pumped to all discharge beds in operation. A site aerial of the IWTP after this latest improvement is shown in **Figure 3-1**.

3.2. Process Design

The IWTP is currently rated to treat a monthly average of 6.10 MGD during the canning season and 2.60 MGD the rest of the year to secondary treatment standards utilizing a conventional aerated pond treatment system (although it is currently permitted for 3.5 MGD during the cannery season and 1.72 MGD during the non-canning season). As shown in **Figure 3-2**, major plant components currently in service include the influent headworks, two aeration ponds, and four percolation beds for discharge. A general process flow diagram for the current IWTP treatment is illustrated in **Figure 3-3**.

Currently, industrial wastewater from San Benito Foods and any diverted domestic wastewater are conveyed to the headworks of the IWTP through the industrial sewer-storm drain system. The raw wastewater passes through a mechanical grinder, which is intended to reduce the size of large materials in the raw wastewater, or a 4-inch bar screen. The raw wastewater continues into a grit chamber for additional solids removal, then a 12-inch Parshall flume for influent flow recording, until it is finally directed out to the treatment ponds.

During normal operation the raw wastewater bypasses the primary settling basins and flows directly into Pond 1 because improved pretreatment screening at the cannery decreased the need for solids removal in the settling basins. The current plan of operation utilizes these two settling basins only as a backup mode of operation when additional solids removal is required.

Pond 1 is a facultative aerated pond consisting of 12 acres divided into two zones. The first zone, Pond 1A, has a depth of 26 feet (ft) and zone 2, Pond 1B, has a depth of 24.5 ft. Pond 1 provides 1,575-hp of surface aeration to mechanically supply oxygen for BOD removal. Effluent is then discharged to Pond 2 by means of two overflow weirs.

Pond 2 also operates as a facultative aerated pond with an area of 9 acres and a maximum water depth of 10 ft. Five surface aerators in Pond 2 provide a total of 100-hp of surface aeration. A baffle curtain is located in Pond 2 to minimize short circuiting. After treatment, the effluent is pumped to the percolation beds for discharge.

The percolation beds are operated in batch mode whereby each bed is loaded, temporarily placed out of service when full, and allowed to dry and rest. Periodically, the surface soil is manipulated with a tractor and disc or harrowed to mix dried algae with the soil to further improve permeability.

Unit process design criteria for each process are shown in **Table 3-1**. A summary of each unit process capacity is summarized in **Table 3-2**.

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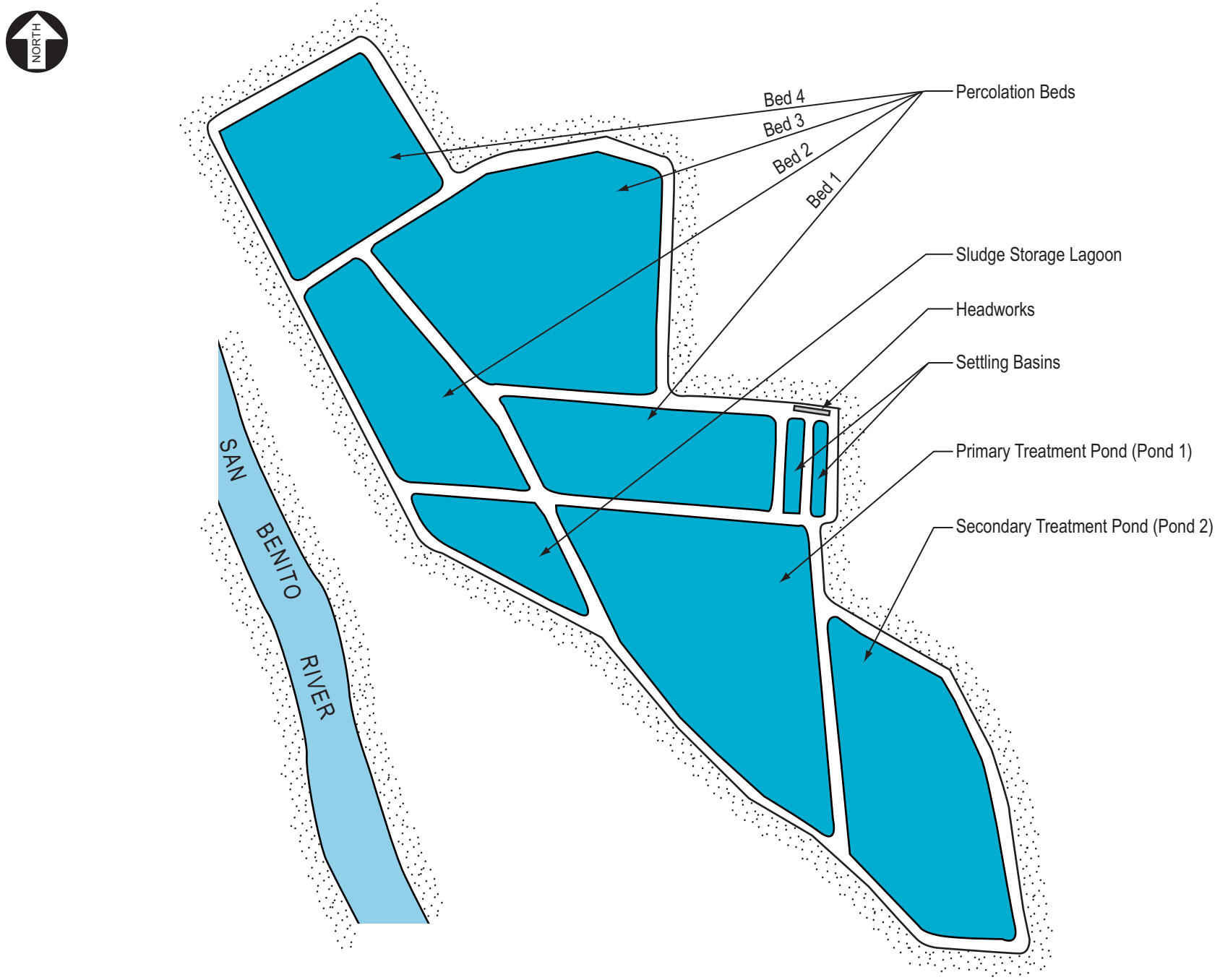
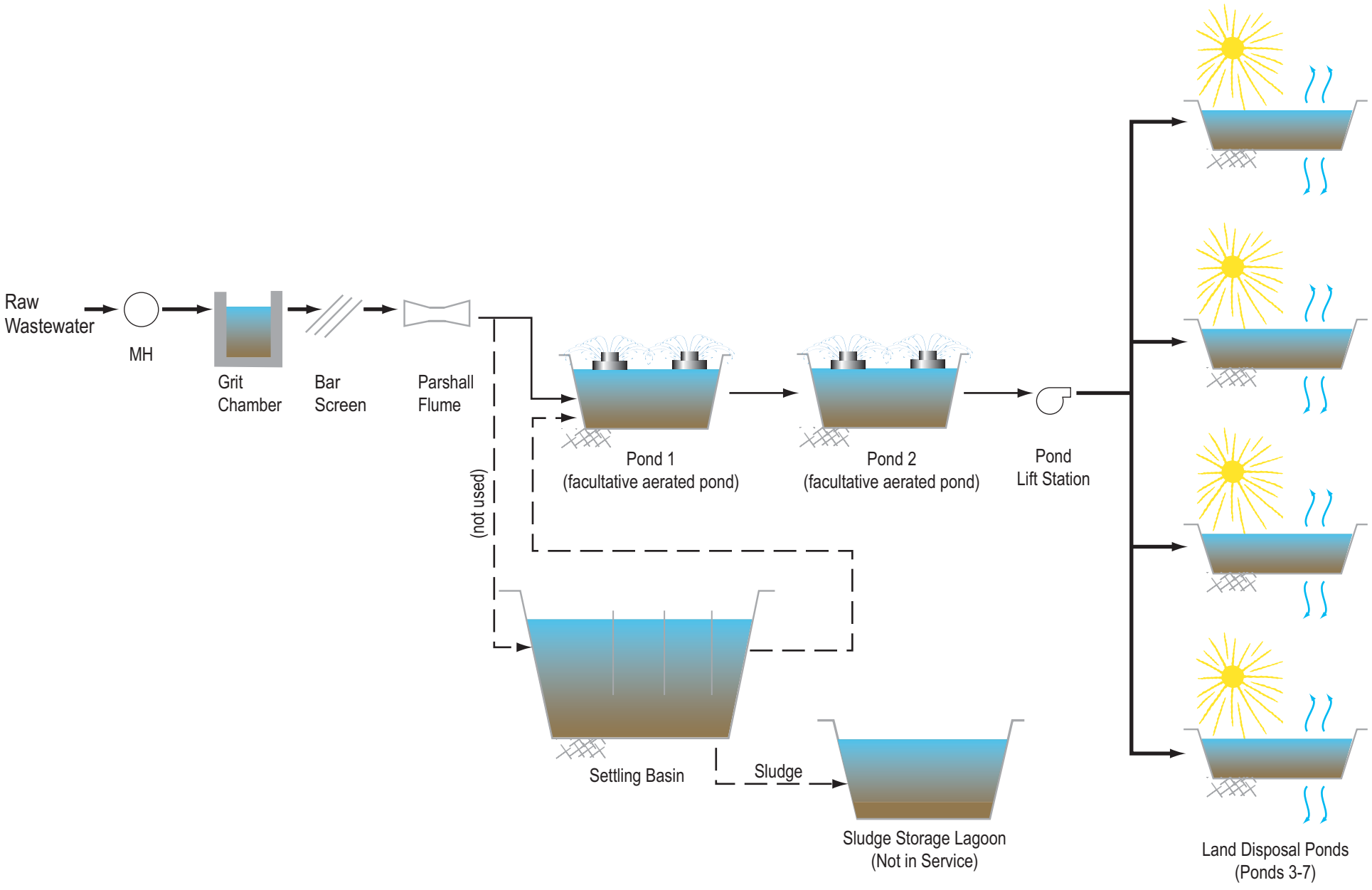
Figure 3-1
City of Hollister Long-Term Wastewater Management Program
IWTP Aerial



S:\common\projects\Hollister\LTWMP\Report\LTWMP 2005\LTWMP December 2005\Figures\Section 3 Figures\Fig 3-2 IWTP Site Plan.ai

HydroScience Engineers, Inc.

Figure 3-2
City of Hollister Long-Term Wastewater Management Program
IWTP Site Plan



S:\common\projects\Hollister\LTWMP\Report\LTWMP 2005\LTWMP December 2005\Figures\Section 3 Figures\Fig 3-3 IWTP Proc Flow.ai

HydroScience Engineers, Inc.

Figure 3-3
City of Hollister Long-Term Wastewater Management Program
Existing IWTP Process Flow Diagram

Table 3-1: IWTP Unit Process Design Criteria [a]

Design Criteria	Design Data	
Raw wastewater	Canning season	Non-canning season
ADF (monthly average)	6.10 MGD	2.60 MGD
BOD	1,200 mg/L	350 mg/L
TSS	Not available	350 mg/L
Headworks		
Grinder		
Type	Mechanical grinder	
Number	1	
Capacity	6.0 MGD	
Bar screen		
Type	Overflow 4-inch bar screen	
Number	1	
Capacity	6.5 MGD	
Influent flow measurement		
Type	Parshall flume	
Number	1	
Size	12-inch	
Facultative aerated ponds (Pond 1A, 1B)		
Total surface area	12 acres	
Depth (Pond 1A, 1B)	26 ft and 24.5 ft	
Total aeration hp	1,575 hp	
Number of aerators	20	
Facultative aerated pond (Pond 2)		
Total surface area	9 acres	
Depth	10 ft	
Total aeration hp	100 hp	
Number of aerators	5	
Secondary Pond Lift Station		
Number of pumps	2	
Capacity (each)	8.64 MGD	
Hp (each)	20 hp	
Percolation beds		
Number	4	
Surface area	36.1 acres	

[a] Abstracted from the City ROWD, November 8, 1998.

Table 3-2: Summary of Major Unit Process Capacities at the IWTP (MGD)

Process	Flow criteria	1998 [a, e]
Headworks	PWWF [b]	6.0
Sedimentation Ponds	ADF [c]	Not in Use
Sludge Stabilization Basin	ADF [c]	Not in Use
Ponds 1, 2 canning season	ADF [c]	6.10
Ponds 1, 2 non-canning season	ADF [c]	9.70
Pond 2 lift station, per pump	PWWF [b]	8.64
Discharge Ponds	AWWF [d]	2.60–5.20

[a] After IWTP upgrades.
[b] NPDES.
[c] Average dry weather flow.
[d] AWWF.
[e] Abstracted from the City ROWD, November 8, 1998.

3.3. Wastewater Effluent Management

Effluent from the IWTP is discharged in a series of percolation beds located along the northwest section of the plant for a combined monthly discharge capacity of 2.60 to 5.36 MGD of discharge capacity, depending on the operational mode. The percolation rate was estimated to be 0.45 ft per day in the canning season and 0.29 ft per day during the non-canning season. Based on these percolation rates, the capacity of the IWTP during the canning season was estimated in the 1998 IWTP ROWD at 4.10 to 5.36 MGD for limited periods of time. This assumes that the percolation beds are operated using long flooding/drying cycles where the beds are flooded during the canning season and allowed to recover during the off-season. In contrast, a sustained discharge capacity of 2.60 MGD can be achieved using relatively short flooding/drying cycles. This operational mode is representative of current IWTP operations where year-round operation has been required to treat and discharge diverted domestic wastewater.

3.4. Current Plant Operations

Operations at the IWTP were evaluated in terms of treatment and discharge capacity. Potential deficiencies in each area are discussed below pursuant to the prevailing WDR Order 00-020 (**Appendix A**).

3.4.1. Treatment

In the absence of any new industrial customer requiring IWTP service and potentially altering influent water quality, there appears to be adequate treatment capacity to handle current wastewater flows. This includes wastewater from the current industrial wastewater discharger and diverted domestic wastewater.

Permit limits became more stringent as of May 1, 2002. Consequently, the City has reported exceedances of discharge limitations at the IWTP. Specifically, the City has reported to the RWQCB that effluent limits for TDS, sodium, and chloride limits have been exceeded. Removal of dissolved solids from treated wastewater is difficult. Treatment processes for dissolved solids removal would typically include advanced processes such as reverse osmosis, ion exchange, or electrodialysis. These processes are typical prohibitively expensive. In addition, removal of TDS by these methods results in a waste brine that requires disposal. An alternative to treating wastewater for dissolved solids removal is source control in the wastewater stream.

The City has been working with San Benito Foods to develop a strategy for reducing TDS levels in the wastewater. In March 2003, the City evaluated the ability of the IWTP to control effluent TDS at the processing source. The results from that study concluded that there is reasonable potential that the IWTP can comply with TDS discharge requirements if source control measures proposed by San Benito Foods, the sole industrial discharger, are implemented and at least a net 25% reduction in raw industrial wastewater TDS is achieved (HydroScience Engineers, 2003b). San Benito Foods however, has continued to discharge water with high levels of TDS, sodium and chloride that exceed IWTP discharge criteria.

3.4.2. Disposal

Evaluation of the IWTP treatment and discharge system does not indicate a deficiency in disposal capacity in the percolation beds based on the current industrial and diverted domestic wastewater flows. A March 1983 study by San Benito Engineering & Surveying concluded that disposal capacity is the limiting factor at the IWTP. They further estimated that the capacity for storage plus discharge was 7.5 MGD, based on canning season operation, measured percolation rates, and on past observations of flow and pond levels. Current influent flows are significantly less than the

estimated disposal capacity. Unless unforeseen industrial customers come online, influent flows to the IWTP will decrease once the City actually implements the LTWMP and stops diverting domestic wastewater to the IWTP.

3.4.3. LTWMP Impacts

Evaluation of the IWTP indicates adequate treatment and disposal capacity to treat current industrial and diverted domestic wastewater. The industrial customer is implementing ongoing source control at the industrial source to mitigate high TDS in the raw industrial wastewater. At the time of this report, there are no additional industrial wastewater customers under consideration for connecting to the IWTP. Adequate disposal capacity currently exists for industrial flow and with the anticipated construction of LTWMP improvements to the DWTP, diversion of domestic wastewater to the IWTP is expected to cease. Once this occurs, additional disposal capacity at the IWTP will be available either for seasonal or year-round discharge.

Primary emphasis for improving effluent quality at the IWTP is source control at San Benito Foods and the implementation of a Wastewater/Storm water Separation Project. The sole discharger to the IWTP in the immediate future would appear to continue to be San Benito Foods. The long-term discharge from San Benito Foods is therefore dependent upon the company's continued operation. The ability of the IWTP to meet future anticipated effluent limitations needs to be reviewed. Further improvements at or modifications to the IWTP can be addressed once the results of these actions have been assessed.

The City considered consolidating treatment of both domestic and industrial wastewater into one new WWTP. However, adding capacity at a new DWTP for a seasonal industrial flow would add significant costs. These costs would be difficult to justify or pass on to San Benito Foods or other members of the community. The City proposes to continue treating industrial wastewater at the IWTP and has not included capacity for the industrial flow in the new DWTP. If necessary, the City could consider adding industrial wastewater treatment capacity as a future upgrade to the new DWTP.